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STABILIZING CHOCOLATE MILK AND OTHER MILK PRODUCTS AND PROCESS OF MAKING SAME

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Our invention is an improvement in manufactured milk products such as ice cream, chocolate milk, cheese and emulsified food products and the process for making same, and the principal objects of the invention are to provide for a more completely stabilized product which still retains the fresh flavor of the milk and/or cream, the same containing vegetable stabilizers consisting of an alginate and another or other stabilizers as hereinafter more fully explained.

Heretofore manufactured milk products such as ice cream, chocolate milk and cheeses have usually been made with gelatine, starch, vegetable gums such as tragacanth, Irish moss, carob bean flour, acacia gum, other gum products or alginates. When such materials are added to dairy products to be frozen, they retard the growth of ice crystals during freezing and subsequent storage. When added to chocolate milk they prevent the cocoa fibers from settling out and when added to cheese prevent the material from separating or "wheying off."

With the exception of the alginates all of these products impart a heaviness to the taste of the product so that it does not taste as do the freshly made products without any stabilizer added. Such stabilized products have the effect of dulling the appetite too quickly so that the amount ordinarily eaten is less than is the case with the pure, unstabilized products. Besides this general objection each of the above mentioned stabilizers and related stabilizing materials have certain individual disadvantages when compared with alginates which do not result in an ideal product.

Thus, frozen dairy products stabilized with gelatine do not melt as completely, lack the delicacy of flavor, and fineness of texture as found in such products stabilized with alginate as is explained in the Howard J. Lucas and Harland C. Green application on Ice cream, ice milk mixture and process for making same Serial No. 23,134 (Case 8163) filed May 23, 1935.

On the other hand the alginate stabilized ice cream or other frozen dairy products do not have the body usually found in ice cream and this is objectionable to some people.

We have found that when frozen dairy products are stabilized with a mixture of alginate and Irish moss that the resulting products have more body and do not melt as rapidly as when alginate only is used. Furthermore, such products when compared with frozen dairy products stabilized with gelatine are superior because they contain no animal products, melt without leaving a residue, have finer crystals of ice so that the ice cream remains smooth even when aged in dealer cabinets, and at the same time have a clean refreshing taste and flavor in the mouth. When this product is compared with dairy products stabilized with gums such as carob bean flour, we find that it melts without leaving a residue, and lacks the slimy taste characteristic of this stabilizer.

By varying the ratio between the amount of alginate and Irish moss used in ice cream the speed of the melting is controlled. The more Irish moss used, the slower the melting. Slow melting gives the impression of a richer or higher butter fat ice cream and one which is more chewy. This is highly desirable with certain people.

A typical way to prepare ice cream using the combination of alginate and Irish moss is given below. This formula makes a 12% butter fat ice cream which tastes like a 14% butter fat ice cream made with gelatine as the only stabilizer:

	Pounds
Cream (40 per cent butter fat)	267.0
Milk (3.5 per cent butter fat)	388.0
Condensed skim milk (30 per cent serum solids)	192.0
Sugar	150.0
Alginate	1.25
Irish moss	1.25

The cream, milk and condensed skim milk are placed in a pasteurizing vat and heated to 160 degrees Fahrenheit. The alginate and Irish moss, ground to a convenient size for easy solution, are then added with the sugar and stirred until dissolved. The mix is then cooled and frozen with typical equipment designed for this use.

The alginate used in this particular example was made in accordance with the methods disclosed in the Howard J. Lucas and Harland C. Green application, Serial #23,134, filed May 23, 1935, Case #8163. Such an alginate as stated in this case is sold under the trade name Dariloid and contains approximately 40 to 50% high viscosity sodium alginate, about 5% trisodium phosphate or the equivalent, the balance being sugar and dextrine. Dariloid is milk soluble due to the presence of the trisodium phosphate or its equivalent and the sugar and dextrine enable a particle of Dariloid to dissolve more readily in water or milk.

The Irish moss was prepared by cooking some commercial bleached Irish moss in water to give approximately a 2% solution and then filtering